

## IV. ENVIRONMENTAL CONSEQUENCES AND MITIGATION

### A. INTRODUCTION

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The environmental consequences and potential mitigation measures associated with the construction and operation of the alternatives retained for further consideration were identified through studies of the natural and social environment. A larger, more regional area was evaluated for some socioeconomic subjects.

### B. PHYSICAL AND BIOLOGICAL ENVIRONMENT

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#### 1. Physical Geography, Soils, and Geology

##### a. Physical Geography

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact physical geography within the Study Area.

##### b. Soils

The No-build Alternative would not impact soils.

Alternative 2A would impact approximately 18.2 ha (44.9 ac.) of soil (see Section IV-B-2-d — Wetlands and Tidal Flats, page IV-3, and Section IV-E-1-f — Prime and Unique Farmland Soils, page IV-11).

Alternative 3 would impact approximately 10.7 ha (26.5 ac.) of soil (see Section IV-B-2-d — Wetlands and Tidal Flats, page IV-3, and Section IV-E-1-f — Prime and Unique Farmland Soils, page IV-11).

Alternatives 2A and 3 would require the removal of vegetation and earth-moving activities, exposing soils to erosive forces. Erosion and sedimentation control measures will be incorporated into the design and implemented during construction of this project in accordance with Section II of the MDOT's *Best Management Practices for Erosion and Sedimentation Control* (MDOT January 2000).

##### c. Geology

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact geological resources that would require extraordinary engineering solutions.

#### 2. Aquatic Resources

##### a. Water Resources

##### (1) Groundwater

The No-build Alternative would not impact groundwater.

Alternative 2A would not impact groundwater wells listed in the MGS private bedrock well database or the Maine Drinking Water Program public well database. However, the MGS stated that its database is not comprehensive and lacks information on older wells in the area (Loiselle December 2000).

Alternative 3 would not impact groundwater wells listed in the MGS private bedrock well database or the Maine Drinking Water Program public well database. Due to the availability of public water near Alternative 3, older, undocumented, private wells are not likely to be impacted within or near Alternative 3 (Loiselle November 2000).

The impact of Alternative 3 on the siting and operation of the potential public drinking water supply well for Calais in the Calais Industrial Park, if developed, cannot be assessed due to a lack of information at this time.

**(2) Surface Water**

The No-build Alternative would not impact surface waters.

Alternative 2A and Alternative 3 would cross the St. Croix River perpendicularly. The dimensions and details of the bridge deck, piers, abutments, and span lengths would be developed during final design.

The highway drainage system would be designed and maintained to reduce the transport of sediments and other particulates to surface waters. Impacts related to sedimentation would be temporary and related to construction activities. A short-term increase in the potential for sediment loading to the St. Croix River exists. Erosion and sedimentation control measures will be incorporated into the design and implemented during construction of this project in accordance with Section II of the MDOT's *Best Management Practices for Erosion and Sedimentation Control* (MDOT Sept. 1997).

**b. Aquatic Habitats and Fisheries**

The No-build Alternative would not impact aquatic habitat and fisheries.

Alternative 2A and Alternative 3 would shade a portion of the St. Croix River. The bridge deck, piers, abutments, and span lengths for the Preferred Alternative would be developed during final design. Consultation with NMFS would occur during final design to develop measures to avoid, minimize, and, if necessary, mitigate the impact of piers within the river on Atlantic Salmon.

**c. Floodplains**

In accordance with Executive Order 11988, Floodplain Management, the impacts on floodplains and floodplain encroachments were considered for each alternative. Encroachments are considered significant by Executive Order 11988 if at least one of the following factors is applicable:

- It has a significant effect on natural and/or beneficial floodplain values
- It would increase the risk of flooding that could result in loss of life or property
- It would significantly impact or otherwise disrupt vital services, facilities, or travel routes

The No-build Alternative and Alternative 2A would not impact floodplains.

Alternative 3 would impact approximately 0.04 ha (0.1 ac.) of the 364.8 ha (901.5 ac.) 100-year floodplain of the St. Croix River in the Study Area.

**d. Wetlands and Tidal Flats**

In accordance with Executive Order 11990, Protection of Wetlands, agencies shall avoid undertaking or providing assistance for new construction located in wetlands unless:

- 1) there is no practicable alternative to such construction, and
- 2) the proposed action includes all practicable measurements to minimize harm to wetlands which may result from the use.

The No-build Alternative would not impact wetlands or tidal flats.

To satisfy the Purpose and Needs of the study, palustrine wetlands would be impacted. According to the USFWS, approximately 359.9 ha (978 ac.) of wetlands exist in the Study Area (Figure III-2, page III-4).

Alternative 2A would impact approximately 1.0 ha (2.5 ac.) of palustrine forested wetlands. Alternative 2A would not impact tidal flats.

Alternative 3 would impact approximately 0.9 ha (2.1 ac.) of palustrine emergent wetlands. Alternative 3 would not impact tidal flats.

**e. Wild and Scenic Rivers**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact state or federally-designated wild and scenic rivers.

**3. Vegetation**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact rare or unique botanical features.

The No-build Alternative would not impact vegetation.

Alternative 2A would impact approximately 13.4 ha (33.1 ac.) of mixed coniferous-deciduous forest and 4.6 ha (11.4 ac.) of rangeland/mowed grass.

Alternative 3 would impact approximately 0.5 ha (1.3 ac.) of deciduous forest, 0.6 ha (1.5 ac.) of mixed coniferous-deciduous forest, and 8.0 ha (19.8 ac.) of rangeland/mowed grass.

**4. Wildlife**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact wildlife or state-regulated wildlife habitats.

Impacts to threatened and endangered species habitat are addressed in Section IV-B-5.

5. **Endangered, Threatened, and Other Protected Species**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact state or federally-listed or proposed endangered or threatened or other protected species.

6. **Coastal Zone Management**

The No-build Alternative would not impact coastal zone features.

Alternatives 2A and 3 would not impact commercial fisheries or public access areas. Alternatives 2A and 3 would impact water quality by creating more impervious surfaces and runoff. Alternatives 2A and 3 would impact economic trends (see Section IV-E-5—Economic Environment, page IV-11).

Alternative 2A would impact approximately 18.0 ha (44.5 ac.) of vegetation, 18.0 ha (44.5 ac.) of a variety of wildlife habitat, 1.2 ha (2.9 ac.) of wetlands, and 0.08 ha (0.2 ac.) of submerged lands in the St. Croix River.

Alternative 3 would not impact commercial fisheries or public access areas. Alternative 3 would impact approximately 9.1 ha (22.6 ac.) of vegetation, 9.1 ha (22.6 ac.) of a variety of wildlife habitat, 0.9 ha (2.1 ac.) of wetlands, and 0.08 ha (0.2 ac.) of submerged lands in the St. Croix River.

7. **Navigation**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact navigation.

C. **ATMOSPHERIC ENVIRONMENT**

1. **Air Quality**

The No-build Alternative would not impact air quality.

Alternative 2A and Alternative 3 would beneficially impact air quality (Table IV-1). Previous evaluations of changes in VMT and average travel speed on area roads, compared to CO emission factors, indicate an approximately ten percent reduction of CO emissions with either build alternative over the No-build Alternative (MDOT and NBDOT 1992). Given this reduction, and the low ambient concentrations inherent in the area, no detailed microscale CO analyses are appropriate. This determination is consistent with the guidance provided in the FHWA Technical Advisory, T 6640.8A.

Table IV-1, Air Quality Impacts

	No-Build Alternative	Alternatives 2A and 3
1990 VMT (vehicle-miles)	96,819	104,986
1990 Average Speed (mph)	34.9	44.1
1999-2000 CO Emission Factor (gm/vehicle-mile)	20.7	17.2
Emissions (kg/day)	2,004	1,806

## 2. Noise

The No-build Alternative, Alternative 2A, and Alternative 3 would result in different noise levels at different locations (Table IV-2, next page). For comparison purposes, increases over 1999 existing noise levels are included. The shaded cells indicate impacts at sites with noise levels approaching or exceeding the FHWA and MDOT noise abatement criteria (NAC) level of 67 dBA (equal to or greater than 66 dBA).

Alternative 2A would result in noise impacts in NSAs 2, 3, 4, and 6. Alternative 3 would result in noise impacts in NSAs 1, 2, 3, and 4.

FHWA NAC and MDOT policy require consideration of noise abatement at sites where the noise level approaches or exceeds the NAC level (i.e., where a level equal to or greater than 66 dBA is predicted) and for MDOT, where a substantial increase in noise levels (equal to or greater than 15 dBA) is predicted (USDOT 1995 and MDOT 1998). When consideration of abatement is warranted, examination and evaluation of alternative noise abatement measures for reducing or eliminating noise impacts must be considered. Sites meeting these criteria were evaluated for noise abatement in terms of the feasibility and reasonableness of abatement.

Traffic control methods (such as speed limit reductions) have relatively insignificant effects on noise levels and are difficult to consistently enforce. Noise barriers reduce noise levels by blocking the sound path (and thus diffracting sound) between roadways and NSAs. For a noise barrier to be considered feasible by MDOT, it must provide a minimum insertion loss of 7 dBA (preferably 10 dBA) for first row of benefited receptors, be consistent with safety and operational factors, and be feasible to construct given the topography of the area.

Mitigation along Route 1 and Route 9 would not be feasible due to the need to maintain access to adjacent properties and roadways. Building a noise barrier, while still providing the necessary access to properties, would render the barrier acoustically ineffective.

Alternative 2A would impact a single and isolated sensitive receptor in NSA 3. The cost of abatement measures to achieve a 5 dBA insertion loss would be approximately \$146,800 (based on a barrier cost of \$20 per square ft.). The barrier would need to be 3.7 m (12 ft.) high and approximately 171.9 m (564 ft.) in length. Mitigation measures, while feasible, would not be reasonable. Alternative 2A would reduce noise at 55 percent (12 of 22) of the modeling sites studied compared to the No-build Alternative.

Alternative 3 would impact residences in NSAs 1, 2, 3 and 4; mitigation measures would not be feasible because of the need to maintain access to properties. Alternative 3 would reduce noise at 41 percent (9 of 22) of the modeling sites studied compared to the No-build Alternative.

**Table IV-2, Summary of Noise Levels and Impacts**

NSA	Predicted Noise Levels Leq (dBA) <sup>1</sup>							
	Modeling Site <sup>2</sup>	Existing	No-Build		Alt. 2A		Alt. 3	
		Leq	Leq	IOE <sup>3</sup>	Leq	IOE	Leq	IOE
1	R1-1	61	63	2	63	2	63	2
	R1-2	58	61	3	61	3	61	3
	R1-3	62	64	2	64	2	64	2
	R1-4	59	62	3	63	4	61	2
	R1-5	57	59	2	59	2	61	4
	R1-6	62	65	3	64	2	67	5
	R1-7	61	63	2	62	1	66	5
	R1-8	57	59	2	59	2	62	5
	R1-9	61	65	4	52	-9	65	4
2	R2-1	63	67	4	61	-2	67	4
3	R3-1	69	72	3	66	-3	72	3
	R3-2	67	70	3	64	-3	70	3
4	R4-1	52	55	3	51	-1	55	3
	R4-2 <sup>4</sup>	51	51	0	51	0	51	0
	R4-3	51	51	0	51	0	51	0
	R4-4	63	66	3	59	-4	66	3
	R4-5	58	61	3	53	-5	54	-4
5	R5-1	62	65	3	51	-11	51	-11
6	R6-1	66	68	2	62	-4	62	-4
	R6-2	66	68	2	61	-5	61	-5
	R6-3	66	69	3	62	-4	62	-4
7	R7-1	63	63	0	50	-13 <sup>5</sup>	50	-13 <sup>5</sup>

<sup>1</sup> Shaded blocks indicate impacts.

<sup>2</sup> Modeling site represents an individual residence within the larger NSA. NSA contain some commercial facilities.

<sup>3</sup> IEO=Increase over existing

<sup>4</sup> Existing background noise level of 51 dBA was based on measurement at Site 4-2.

<sup>5</sup> Reduction due to elimination of trucks at Ferry Point Crossing.

## D. TRANSPORTATION ENVIRONMENT

For Alternatives 2A and 3, it was assumed that the inspection facilities at Ferry Point and Milltown would remain open to autos and all trucks would be required to use the new crossing and inspection facility, unless approved by special permit.

The forecast traffic growth rate for trucks is 3.9 percent, un compounded, through the year 2030. Non-commercial, cross-border traffic is forecast to grow at an un compounded annual rate of 1.5 percent through the year 2030. Traffic that does not cross the border is anticipated to grow at an un compounded annual growth rate of 1.0%.

Future LOS values were forecast for key highway segments, signalized intersections, and unsignalized intersections for the year 2030. The forecasted values were analyzed with and compared to the 1999 LOS values for the same areas.

### 1. No-build Alternative

In 2030, Route 1 between the Calais Industrial Park and Route 9 is estimated to operate at a LOS E. LOS E is defined as traffic flow conditions on two-lane roadways having a percent time delay of greater than 75 percent. Passing is extremely difficult under these conditions (Transportation Research Board 1998).

During peak travel conditions, the intersection of Main Street and North Street in Calais operated at LOS B in 1999 and is forecast to operate at LOS C in 2030.

### 2. Alternative 2A

Alternative 2A would impact three intersections; the LOS at these intersections was estimated (Table IV-3).

There are no traffic problems forecasted at the intersections associated with Alternative 2A. This alternative provides a connection, via an at-grade intersection, between the border crossing and Route 9. This alternative requires the installation of a traffic signal in the future to accommodate forecasted traffic flows.

With Alternative 2A, the section of Route 1 between the Calais Industrial Park and Route 9 would function at LOS C, operating at approximately 34 percent of its capacity in 2005 (assumed opening year), and LOS D, operating at 44 percent of its capacity in 2030.

**Table IV-3, LOS for Intersections Adjacent to Alternative 2A**

Location	Year	LOS
Route 1 at Connector Road to Existing Route 9	1999	C <sup>1</sup>
	2030	B <sup>2</sup>
Route 1 at Existing Route 9	1999	A <sup>3</sup>
	2030	A <sup>3</sup>
Connector Road to Route 9 at Existing Route 9	1999	B <sup>3</sup>
	2030	B <sup>3</sup>

<sup>1</sup> Unsignalized LOS - southbound Route 1 approach

<sup>2</sup> Signalized LOS - intersection as a whole

<sup>3</sup> Unsignalized LOS - Existing Route 9 approach

### 3. Alternative 3

Alternative 3 proposes a new intersection with Route 1 at the Calais Industrial Park. This intersection requires a traffic signal under 1999 and 2030 peak season conditions, and will operate at LOS B in 1999 and 2030 peak season conditions.

With Alternative 3, the section of Route 1 between the Calais Industrial Park and Route 9 would function at LOS D, operating at approximately 47 percent of its capacity in 2005 (assumed opening year), and LOS E operating at 67 percent of its capacity in 2030.

### 4. Transportation System Efficiency Analysis

VMT and VHT for border crossing trips were determined for the No-build Alternative, Alternative 2A, and Alternative 3 (Table IV-4). Separate estimates of VMT and VHT are shown for trucks and automobiles for both 1999 and 2030. These values represent daily average annual trips. Since a constant number of trips were used for each alternative, comparing the VMT and VHT provides a relative measure of an alternative's efficiency in handling the trips across the border.

The VHT for the No-build Alternative includes delay caused by the existing inspection facilities at the Ferry Point border crossing. To account for this known delay, 8.8 minutes was added to every vehicle-trip for the 1999 No-build Alternative. For the 2030 No-build Alternative, 13.2 minutes was added to every vehicle-trip. These values were derived from the September 2000 freight delay study (an average of 8.8 minutes of delay per vehicle) and the anticipated growth in border crossing trips between 1999 and 2030 (50 percent).

Alternative 2A and Alternative 3 reduce the number of VMT and VHT over the No-build Alternative. In 2030, Alternative 2A results in fewer auto and truck VMT (6.1 percent or 8,418 miles and 5.8 percent or 2,143 miles, respectively) and fewer auto and truck VHT (5.5 percent or 169 hours and 5.6 percent or 44 hours, respectively) than Alternative 3 (daily reductions).

VMT and VHT may be used to extrapolate the comparative economic impacts to motorists. As VMT represents travel distances to complete trips in the system, it may be used to estimate the variable operating costs of travel, which includes the cost of fuel, oil, tires, maintenance, and repairs, but excludes fixed costs such as insurance

**Table IV-4, Transportation System Efficiency Analysis: Daily Average Annual Border Crossing Trips**

Year	Measure	No-build Alternative	Alternative 2A	Alternative 3
1999	Auto VMT	93,873	86,986	92,689
	Truck VMT	15,150	15,346	15,884
	Auto VHT	2,868	1,943	2,056
	Truck VHT	408	321	332
2030	Auto VMT	138,500	128,513	136,931
	Truck VMT	35,304	34,602	36,745
	Auto VHT	4,797	2,904	3,073
	Truck VHT	1,047	730	774

Source: MDOT Traffic Forecasts and Analysis, December 2000.

and taxes (Table IV-5). As VHT represents travel times to complete all trips in the system, it may be used to estimate the value of time saved between the two build alternatives. Together, these cost savings over the No-build Alternative provide an estimate for system user savings.

Alternatives 2A and 3 provide total travel cost savings over the No-build Alternative. Annually, Alternative 2A results in 22 percent (\$2,147,000) more user savings than Alternative 3 (Table IV-6).

**Table IV-5, Values for Cost Savings Calculations**

Automobile Cost	Truck Costs
\$0.114 per vehicle mile <sup>1</sup>	\$0.700 per vehicle mile <sup>3</sup>
\$10.00 per vehicle hour <sup>2</sup>	\$39.00 per vehicle hour <sup>2</sup>

<sup>1</sup> U.S. Department of Transportation, Bureau of Transportation Statistics. No date.

<sup>2</sup> Public Transportation and the Nation's Economy. FHWA Report Estimating the Impacts of Transportation Alternatives. October 1999.

<sup>3</sup> Maine Motor Transport Association. No date.

**Table IV-6, 2030 Yearly Total Travel Cost Savings over No-build Alternative**

Vehicle Savings	Alternative 2A	Alternative 3
Passenger Car Cost Savings	\$7,324,123	\$6,358,100
Truck Cost Savings	\$4,692,680	\$3,511,594
Total Cost Savings	\$12,016,803	\$9,869,694

## E. LAND USE, CULTURAL, SOCIAL, AND ECONOMIC ENVIRONMENT

### 1. Land Use

#### a. Land Use Patterns

The No-build Alternative would not impact land use.

Alternative 2A and Alternative 3 would directly impact land use through the acquisition of right-of-way and the conversion of a variety of land uses to transportation use.

Alternative 2A would result in the conversion of approximately 18.7 ha (46.1 ac.) of land to transportation use. Two residences along Route 1 in Baileyville would be displaced.

Alternative 3 would result in the conversion of approximately 13.7 ha (33.8 ac.) of land to transportation use. The United Parcel Service (UPS), the Calais Regional Hospital Physical Therapy Clinic and one residence adjacent to the Physical Therapy Clinic would be displaced.

Federal and federally-assisted actions which require acquisition of property must comply with Title VI of the Civil Rights Act of 1964 and the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (49 USC 4601 et seq). Each of these legislative controls protects owners from unfair and inequitable acquisition of property.

#### b. Future Land Use and Zoning

The No-build Alternative would not impact future land use or zoning.

Alternative 2A and Alternative 3 would influence the development of future land uses (see Section IV-E-7 — Secondary Impacts, page IV-22).

**c. Communities and Neighborhoods**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact neighborhood and community cohesion.

**d. Community Facilities and Services**

**(1) Educational Facilities**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact educational facilities.

**(2) Religious Facilities**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact religious facilities.

**(3) Emergency Facilities**

The No-build Alternative would not impact emergency facilities.

Alternatives 2A and 3 would beneficially impact emergency facilities. A new border crossing would reduce traffic congestion resulting in shorter response times for emergency vehicles.

**(4) Health Care Facilities**

The No-build Alternative and Alternative 2A would not impact health care facilities. Alternative 3 would displace the Calais Regional Hospital Physical Therapy Clinic.

**(5) Transportation Services**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact transportation services.

**(6) Cemeteries**

The No-build Alternative, Alternative 2A and Alternative 3 would not impact cemeteries.

**(7) Other Governmental Services**

The No-build Alternative would not impact other governmental services.

Alternative 2A and Alternative 3 would beneficially impact other governmental services. The new GSA-owned inspection facility would improve the operation of government agencies that perform support or related services in the area.

**e. Tribal Lands**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact tribal lands.

MDOT would coordinate with the Passamaquoddy tribe during the final design to minimize impact to the tribe's rights to access the portion of the St. Croix River in Maine from this project.

**f. Prime and Unique Farmland Soils**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact active farmland, farmland soils of statewide importance, and unique farmland soils. No further compliance in accordance with the FPPA is required.

**2. Uncontrolled Petroleum and Hazardous Wastes**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact sites potentially containing uncontrolled petroleum and hazardous wastes.

Alternative 2A is located further away from the most densely populated portion of the Study Area than Alternative 3. In the event of a hazardous materials incident involving a truck carrying potentially hazardous materials, Alternative 2A may provide a somewhat higher level of protection than Alternative 3 to the majority of the people in the Study Area.

**3. Cultural Resources**

**a. Historic Resources**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact historic resources.

**b. Archaeological Resources**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact prehistoric or historic archaeological resources.

**c. Traditional Cultural Properties**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact traditional cultural properties.

**4. Public Parks and Recreation Lands**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact public parks and recreation lands.

**5. Economic Environment**

**a. Population, Demographics, and Labor Force**

**(1) Population**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact population.

**(2) Age and Sex Distribution**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact age and sex distribution.

**(3) Labor Force**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact the number of people in, or the composition of the labor force.

**b. Community Characteristics and Conditions**

**(1) Education**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact educational attainment.

**(2) Housing**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact housing.

**(3) Employment, Income and Taxes**

**(a) Income**

The No-build Alternative, Alternative 2A, and Alternative 3 would not impact per capita and median household income levels, or the percent of population living below the poverty level.

The indirect loss of jobs is discussed in Section E-5-(3)-(c) — Employment and Retail Sector. The indirect loss of jobs would represent a small decrease in total personal income in Washington county. This decrease is less than 0.02 percent of county total personal income, and is not considered substantial.

**(b) Retail Customers and Businesses**

**i) Through Travelers**

The No-build Alternative would impact through travelers. In the future as traffic conditions worsen, through travelers may become increasingly more reluctant to stop in Calais, or use other border crossings.

Alternatives 2A and 3 would beneficially impact through travelers. The studies summarized in the literature review found that the majority of bypassed towns do not suffer adverse impacts from the bypass. Calais can be defined as a medium-sized community. The results of the literature review indicate that traffic on the original (bypassed) route was greater than traffic on the bypass for medium-sized communities, suggesting that Calais' traveler-oriented and traffic-dependent businesses may experience few adverse impacts from Alternatives 2A and 3.

The NCHRP found that in all cases, land values increased along existing routes and new bypasses. The NCHRP found that in almost all cases, the amount of land in commercial or industrial use increased along both existing routes (93 of 98 cases) and new bypasses (11 of 13 cases). This suggests that economic development would occur in Baileyville or Milltown, depending on the alternative selected. The results of the literature review indicate that the vast majority of retail businesses had not moved from their pre-bypass locations, suggesting that most retail business in Calais might not be likely to relocate as a result of the construction of Alternatives 2A or 3.

Calais is unique in comparison to the towns studied in the literature review in one respect. Whereas traffic congestion in the towns described in the literature review resulted from regional and corridor growth, traffic congestion in Calais has re-

sulted primarily from an inadequate border crossing facility and increased truck traffic through the area. Therefore, Calais would not be likely to enjoy the same level of post-bypass growth as the towns reviewed in the literature.

The origin-destination survey showed that 17 percent of total traffic through the Ferry Point Crossing was composed of through travelers who stopped in Calais. In 1997, 3.1 million people used the Ferry Point Crossing. Therefore, it can be estimated that approximately 540,640 through travelers stopped in Calais in 1997 (17 percent of 3.1 million). Assuming that each of these travelers spent an average of \$20, through travelers using the Ferry Point Crossing spent approximately \$10.8 million in Calais in 1997. Calais' total retail sales, including gasoline station sales and accommodations and food services sales, were \$112.4 million in 1997 (U.S. Census Bureau 2001). Therefore, through travelers were estimated to be responsible for approximately 9.6 percent of Calais' retail sales.

If the new border crossing were located outside Calais, some percentage of these sales would be lost to Calais. However, it should *not* be assumed that a 9.6 percent overall retail sales decrease would result from either Alternatives 2A or 3.

Alternative 3 would likely result in a smaller sales decrease than Alternative 2A. If the study Purpose and Needs are to be satisfied, bypass effects from a loss of through travelers would occur with both build alternatives. It is anticipated that the growth in future traffic volumes in the Study Area and region would offset these bypass effects over the long term.

#### **ii) Retail Customers**

The No-build Alternative would impact retail customers. Four of 21 downtown businesses surveyed indicated that their customers are currently being negatively affected by downtown traffic congestion. The No-build Alternative does not reduce downtown traffic congestion.

Alternatives 2A and 3 would impact Calais retail customers. The MDOT customer-intercept survey showed that Alternatives 2A and 3 would decrease the number of through travelers and likely the number of Calais visitors to the area (Table VI-7 and Table IV-8, next page). For each business, the possible sales decrease was reported as a range. The lower limit of this range is the sum of all the customers (visitors and through travelers) who said they would *not* visit the business if the new border crossing was built. The upper limit of the range is the sum of all the customers who said they *might* or would *not* visit the business if the new border crossing was built. The sales decrease at each business is assumed to correspond to the percentage decrease in customers. The range is meant to represent both a worst-case and a moderate-case scenario for Alternatives 2A and 3. Note that the sales decrease estimates are derived solely from the results of the customer surveying. Outside factors, such as the impact of loss of visibility as free advertising or the benefit of a decrease in traffic congestion were not quantified because, based upon the survey results, these factors were thought to be very small.

**Table IV-7, Results of August 21-24, 2000 Customer-Intercept Surveys**

	Possible Sales Decrease from new border crossing in Milltown	Possible Sales Decrease from new border crossing in Baileyville
Hardwicke's Country Store/Exxon	7-14%	17-26%
McDonalds Restaurant	19-31%	22-41%
Marden's Surplus and Salvage	0%	6-12%
Knock on Wood	0%	0%

*Note: Bernardini's Restaurant and Bag End Emporium were also surveyed but these locations did not yield enough surveys to produce a valid sample size for analysis.*

*Source: MDOT, Customer Intercept Survey Results, 2000.*

### iii) Retail Businesses

The No-build Alternative would impact retail businesses. Four downtown businesses indicated that their customers are currently being affected negatively by downtown traffic congestion. There may be additional businesses in the downtown area that feel their customers are being affected negatively by traffic congestion. The No-build Alternative does not reduce downtown traffic congestion.

Alternatives 2A and 3 would beneficially impact access to retail businesses. Alternatives 2A and 3 would improve the traffic congestion problem in the downtown by requiring all trucks to use the new border crossing.

Summer tourism traffic through downtown Calais would decrease with the Alternatives 2A and 3. Alternative 2A may cause a larger decrease in the level of summer tourism traffic than Alternative 3, since the new border crossing would be further from downtown Calais. The development of the Downeast Heritage Center and the East Coast Greenway Trail would attract tourists to the region and to Calais.

MDOT business survey responses indicate that the majority of business owners surveyed prefer Alternative 3. Fifty-two percent (11 of 21) of respondents expect negative impacts from Alternative 3, in contrast with 81 percent (17 of 21) of respondents for Alternative 2A. In addition, 38 percent (8 of 21) of business owners surveyed actually expect positive impacts from Alternative 3, while only 5 percent (1 of 21) of business owners expect positive impacts from Alternative 2A.

**Table IV-8, Customer Composition of Surveyed Businesses**

	% through travelers	% Calais visitors	% Calais residents
Hardwicke's Country Store/Exxon	19	65	16
McDonalds Restaurant	54	39	7
Marden's Surplus and Salvage	8	86	6
Knock on Wood	14	86	0

*Note: Bernardini's Restaurant and Bag End Emporium were also surveyed but these locations did not yield enough surveys to produce a valid sample size for analysis.*

*Source: MDOT, Customer Intercept Survey Results, 2000.*

**(c) Employment and Retail Sector**

The impacts discussed above would be felt more substantially due to the economic decline already occurring in Calais. In the MDOT business survey, 68 percent (13 of 19 respondents) of Calais business owners indicated that sales had decreased at their business over the last five years. Seventy-six percent (16 of 21 respondents) of business owners also indicated that they were optimistic that sales would increase over the next five years.

The current exchange rate will be an impediment to a growth trend. Based on a statistical review of the data and a conversation with University of Maine Cooperative Extension, a rough inverse relationship appears to exist between retail sales and the exchange rate (McConnan 2001). Calais retail sales peaked in 1991 when the exchange rate was at its lowest level in twenty years (the highest incentive level for Canadians to purchase American goods). In 1999 and 2000, the exchange rate was at its highest level in twenty years (Figure III-19, Taxable Retail Sales By Group, page III-38, and Figure III-20, Canada/U.S. Exchange Rate, 1984-1999, page III-38). Over time, exchange rates return to equilibrium and, therefore, should not influence long-term decisions (Colgan 2001).

The No-build Alternative would not substantially impact employment and the retail sector in the Study Area.

**i) Traveler-Oriented Businesses**

Alternative 2A would impact employment at traveler-oriented businesses in the Study Area (Table IV-9). The traveler-oriented business sectors evaluated as a part of this study are fast food/pizza shop restaurants and gasoline stations/convenience stores. Since the new border crossing would be approximately seven miles

**Table IV-9, Total Employees and Potential Jobs Lost**

				No-build Alternative	Alternative 2A		Alternative 3	
	Full time	Part Time	Total FTE <sup>1</sup>	moderate/ worst case	moderate case	worst case <sup>2</sup>	moderate case	worst case <sup>2</sup>
Fast Food Restaurants	28	122	89	0	20	48	17	48
Gas Stations/ Convenience Stores	27	28	41	0	7	11	3	6
General Merchandise	80	20	90	0	5	11	0	0
Total Potential Jobs lost	—	—	—	0	32	70	20	54

<sup>1</sup> FTE=Full Time Equivalent employees: two part-time employees equal one full-time employee.

<sup>2</sup> Worst case scenario for fast food restaurants = all through travelers choose alternate route.

Source: MDOT 2000 and Phone Interviews 2000.

from Calais, it is likely that many through travelers and possibly some Calais visitors would no longer visit traveler-oriented businesses in Calais unless influenced to do so by signs or other advertisements.

Many pass-through travelers are relatively indifferent in their preferences of fast food restaurants and gasoline stations. Pass-through travelers often select these businesses based primarily on convenience of location. Currently traveler-oriented businesses in Calais have an advantageous location directly on Route 1. But by locating the new border crossing seven miles from downtown Calais, competitive traveler-oriented businesses in the Bangor area, St. Stephen and points north in Canada, may be more convenient relative to the highway system than businesses in Calais and may draw business away from Calais. At least some of this traveler-oriented business could shift to the Baileyville area with Alternative 2A.

Baileyville currently has gasoline station/convenience stores that may benefit from an increase in sales with Alternative 2A. Traveler-oriented business development in Baileyville near the new border crossing would likely keep business in the region.

The MDOT customer-intercept survey indicated that with Alternative 2A, Hardwicke's Country Store/Exxon could see a 17 to 26 percent potential decrease in sales (Table IV-7, page IV-14). For this analysis, sales decrease estimates from Hardwicke's Country Store/Exxon were extrapolated to the gas station/convenience stores along Route 1 in Calais.

For this analysis, the potential decrease in employment was assumed to correspond to the percentage decrease in sales. According to phone interviews and MDOT business surveys, Calais gas station/convenience stores employ a total of approximately 27 full-time and 28 part-time employees, or 41 FTE employees (full-time equivalent, using two part-time per full-time employee).

Therefore, a loss of between 7 and 11 jobs at gas station/convenience stores could result from Alternative 2A (17 and 26 percent of 41 FTE employees). (Secondary impacts in the form of new jobs are likely; see Section IV-E-7-b — Secondary Impacts, page IV-22.) It was beyond the scope of this study to identify the individual businesses that are likely to experience the most substantial impacts. The analysis also does not consider increased demand when fuel prices are low. Therefore, the analysis was applied to the sector as a whole.

Note that for Hardwicke's Country Store/Exxon, potential sales decreases resulting from a new border crossing may be mitigated by the improvement in traffic congestion in front of the store. Hardwicke's management noted in their business survey that they feel that more St. Stephen's residents would visit their business if the traffic congestion in front of their store were improved.

The potential impact to sales and employment in the fast food/pizza shop restaurant sector was estimated using the MDOT customer intercept survey results for the McDonald's Restaurant. According to the customer-intercept survey, McDonald's Restaurant could see a 22 to 41 percent potential decrease in sales with Alternative

2A (Table IV-7, page IV-14). It was beyond the scope of this study to identify the individual businesses that are likely to experience the most substantial impacts. Therefore, the analysis was applied to the sector as a whole.

For this analysis, the potential sales decrease estimates from McDonald's Restaurant were extrapolated to the fast food/pizza shop restaurants along Route 1 in Calais. The survey indicated that 54 percent of customers at McDonald's are through travelers (Table IV-8, page IV-14). Since the percent of through travelers is higher than the predicted percent decrease in sales, this analysis used the percent of through travelers as a worst-case scenario, to capture the inherent uncertainty associated with customers' predictions of their future actions.

According to phone interviews and MDOT business surveys, Calais fast food/pizza shop restaurants employ a total of 28 full-time and 122 part-time employees, or 89 FTE employees. A percentage of total Calais fast food restaurant/pizza shop employment was used, since identifying the individual businesses impacted most substantially was beyond the scope of this analysis.

In a worst-case scenario (loss of all through travelers), 48 jobs could be lost (54 percent of 89 FTE employees). In a moderate-case scenario, 20 jobs could be lost (22 percent of 89 FTE employees).

In total, construction of Alternative 2A could result in a loss of between 27 and 59 jobs at traveler-oriented businesses. This represents between 1.7 and 3.8 percent of total 2000 employment in Calais (Table IV-9, page IV-15). If commercial development occurred near the new border crossing in Baileyville, some of the job loss in the area would represent simply a movement from Calais to Baileyville, which remains in the same labor force area. If development did not occur, the jobs lost in Calais would represent movement out of the region.

Alternative 3 would impact employment at traveler-oriented businesses. With Alternative 3, the new bridge and border crossing would be closer to Calais than with Alternative 2A (approximately two miles versus seven miles). Compared to Alternative 2A, pass-through travelers might be more willing to travel the shorter distance to visit Calais businesses (as indicated by the MDOT survey results). However, Alternative 3 still bypasses through-traffic out of downtown Calais, impacting traveler-oriented businesses along the northern section of Route 1 in Calais.

The customer-intercept survey indicated that with Alternative 3, Calais gas station/convenience stores could see a 7 to 14 percent decrease in sales. Therefore, Alternative 3 could cause a loss of between 3 and 6 jobs at gas station/convenience stores (7 and 14 percent of 41 FTE employees).

According to the customer-intercept surveys, Alternative 3 could result in a potential sales decrease of between 19 and 31 percent for downtown Calais fast food/pizza shop restaurants. As a worst-case scenario, this analysis used the total percent of through travelers (54 percent). Therefore, Alternative 3 could result in a loss of 17 to 48 jobs (19 and 54 percent of 89 FTE employees).

In total, Alternative 3 could result in a loss of between 20 and 54 jobs at traveler-oriented businesses. This represents between 1.3 and 3.5 percent of total 2000 employment in Calais (Table IV-9, page IV-15). If commercial development occurred near the new border crossing in Milltown, some of the job loss to Calais could be offset. However, if commercial development did not occur, the jobs lost in Calais would represent movement out of the region.

Bypass effects to Calais would occur with either Alternative 2A or Alternative 3. The difference in impacts between these two alternatives to traveler-oriented businesses is estimated to be approximately five to seven full-time jobs. With either Alternative 2A or Alternative 3, the effect of the job loss would be felt more substantially due to the high unemployment rate (9.2 percent in 2000) in Calais.

#### ***ii) Traffic-dependent businesses***

Alternatives 2A and 3 would likely impact employment at traffic-dependent businesses in the Study Area. Traffic-dependent businesses are those who are not “traveler-oriented” but believe their visibility along Route 1 is a vital form of advertising (see Section III-E-5-b-(3)-(c) — Retail Businesses). While downtown Calais businesses may attract limited pass-through traveler business, the majority would not be characterized as traffic-dependent. Downtown Calais is composed primarily of clothing and shoe stores, general merchandise, auto-supply, appliance, hardware, sporting goods, and painting/home improvement stores. These businesses are not categorized as traveler-oriented or traffic-dependent because their customer base is overwhelmingly local.

There are several specialty stores and casual/fine dining restaurants in downtown Calais. These businesses could *possibly* be categorized as traffic-dependent, provided their customer base contained a substantial proportion of through travelers. Customer-intercept surveys conducted at two downtown Calais businesses, Bernadini’s Restaurant and Bag End Emporium, failed to produce enough surveys for a valid estimate of through traveler sales.

Knock on Wood, a specialty store in Baring, was surveyed as a part of the MDOT customer-intercept survey (Table IV-7, page IV-14). The survey results indicated that all Calais visitors and through travelers would still visit Knock on Wood with Alternatives 2A or 3. (A small sample size limits conclusions that may be drawn from these results.) The fact that 100 percent of customer traffic on the day of the survey comprised of Calais visitors and through travelers indicates that visibility plays a role in drawing customers to this store. Knock on Wood could be characterized as a traffic-dependent business. Therefore, “traffic-dependent” businesses in this analysis refer to Knock on Wood, *possibly* several other specialty stores along Route 1, and *possibly* two casual/fine dining restaurants, Bernadini’s and the Townhouse Restaurant.

The origin-destination survey estimated that 17 percent of total traffic through the Ferry Point Crossing was from pass-through travelers who stopped in Calais. Traffic-dependent businesses would lose visibility as a form of advertising to at least some

of this traffic, probably lowering sales at these businesses. Lower sales would probably decrease employment at these businesses. Note that the potential sales decrease at traffic-dependent businesses should not be assumed to be 17 percent. The 17 percent of total traffic includes travelers stopping at traveler-oriented businesses. Also, the amount of sales that result from visibility as opposed to other forms of advertising cannot be quantified within the scope of this study.

In summary, the traffic-dependent business sector in Calais is small, and negative impacts resulting from Alternatives 2A and 3 would not be substantial.

### ***iii) General merchandise sector***

The No-build Alternative would impact the general merchandise sector in downtown Calais due to traffic congestion. The general merchandise sector outside of downtown Calais would not be impacted.

General merchandise accounted for 52 percent of taxable consumer sales in the Calais area in 2000 (see Section III-E-5-b-(3)-(c) — Employment and Retail Sector). Typically, general merchandise is not considered a business sector that would be directly impacted by changes in traffic patterns, since most general merchandise sales are to local customers. However, in the MDOT business survey, the owner of Marden's Surplus and Salvage estimated that 50 percent of sales at this store came from pass-through travelers. Therefore, the MDOT customer-intercept survey evaluated the potential impact of Alternatives 2A and 3 on general merchandise businesses in Calais. The MDOT customer-intercept survey indicated that 8 percent of customers at Marden's Surplus and Salvage were through travelers (Table IV-8, page IV-14). The survey results indicated that a 6-12 percent sales loss could result from Alternative 2A (Table IV-9, page IV-15).

To evaluate the impact of Alternative 2A on employment in the general merchandise business sector, Marden's Surplus and Salvage survey results were extrapolated to Ames department store. Results were not extrapolated to Wal-Mart because Wal-Mart is considered a destination business that draws customers to the region. Also, Wal-Mart is not located on Route 1. Employment at Ames was estimated to be approximately the same as employment at Marden's Surplus and Salvage. A total of 90 FTE employees were estimated to work in the two stores. Applying a 6-12 percent sales reduction results in a loss of between 5 and 11 jobs in the general merchandise sector from Alternative 2A.

Alternative 3 would not impact the general merchandise sector. All through travelers and Calais visitors stated that they would still visit Marden's Surplus and Salvage if a new border crossing was built in Milltown (Alternative 3).

### ***iv) Accommodations Sector***

Alternatives 2A and 3 would likely have some impact the accommodations sector of the Calais economy. Customer-intercept surveys distributed to this sector were not returned, so the potential impact cannot be quantified. Accommodations

businesses are defined as “traveler-oriented.” Consumer sales are highest in this sector in the third quarter, suggesting that tourist traffic is important for these businesses (Figure III-17, page III-35).

According to the U.S. Census Bureau and the Calais Tax Assessor’s Office, there are six accommodations businesses in Calais. If the new border crossing was located two to seven miles from the current locations of these businesses, the businesses may lose some of their pass-through traveler customers to competing accommodations businesses in the Bangor area, Route 1 along the coast in Maine. St. Stephen, or points further north in Canada. It is anticipated that the difference in impacts between the No-build Alternative and Alternatives 2A and 3 to the accommodations sector would be very small given the distance to most competing businesses.

#### (d) Property Tax Revenue

The No-build Alternative would not impact the Calais city budget.

Alternative 2A would impact property tax revenue collected in Calais (Table IV-10). Total property tax paid by gas station/convenience stores in Calais was \$55,879 in 2000. According to MDOT customer-intercept surveys, gas station/convenience stores could see a potential sales decrease of between 17 and 26 percent with Alternative 2A. Eventually, this sales reduction might be reflected in reduced assessments at those properties. A direct effect on the real estate base would be felt if one or more stores closed in Calais. Assuming that the store is not replaced by a comparably-valued land use, the property tax base (and associated revenues) is reduced. Predicting which individual stores would be most likely to close is beyond the scope of this analysis. Therefore, the property tax revenue impact has been estimated by applying a percentage reduction across all property taxes paid by Calais traveler-oriented businesses. With Alternative 2A, the potential property tax revenue loss to Calais in the gas station/convenience store sector is estimated to be between \$9,499 and \$14,529 (17 and 26 percent of \$55,879).

**Table IV-10, Potential Calais Property Tax Revenue Impacts**

	Gas Station/ Convenience Stores		Fast Food/Pizza Shop Restaurants		Customs Brokers	Total Impacts (\$)	
	moderate case scenario	worst case scenario	moderate case scenario	worst case scenario		moderate case scenario	worst case scenario
Alternative 2A	\$9,499	\$14,529	\$11,501	\$28,299	\$16,068	\$37,068	\$58,896
Alternative 3	\$3,912	\$7,823	\$9,933	\$28,229	\$0	\$13,845	\$36,052

Total property tax paid by fast food/pizza shop restaurants in Calais was \$52,277 in 2000. As in Section IV-E-5-b-(3)-(c) — Employment and Retail Sector, a 22 to 54 percent sales decrease was used to estimate property tax revenue loss from fast food/

pizza shop restaurants. With Alternative 2A, Calais could experience a potential property tax revenue loss of between \$11,501 and \$28,229 (22 and 54 percent of \$52,277).

Although not part of the retail sector, Calais customs brokers pay property tax in Calais and would leave Calais to be located next to the new border crossing with Alternative 2A. Therefore, the property tax revenue loss from these businesses was included with the total property tax revenue impacts. Total property tax revenue paid by customs brokers in 2000 was \$16,068. This revenue would be shifted to Baileyville with Alternative 2A.

In total, a property tax revenue loss to Calais of between \$37,068 and \$58,896 could result from Alternative 2A. This represents between 1.2 and 2.0 percent of total projected Calais property tax revenues in 2000, and between 0.5 and 0.7 percent of the total Calais city budget for 2000.

Some retail businesses that close or reduce operations because of the decrease in through traffic from Alternative 2A could possibly relocate near the new border crossing in Baileyville. The property tax revenue would then stay in the region, but would still be lost to Calais unless a tax-sharing mechanism was adopted.

Alternative 3 would impact property tax revenue collected in Calais (Table IV-10, page IV-20). According to MDOT customer-intercept surveys, Calais gas station/convenience stores could see a potential 7 to 14 percent decrease in sales with Alternative 3. Therefore, a potential loss of between \$3,912 and \$7,823 in property tax revenues from Calais gas station/convenience stores could result from Alternative 3 (7 and 14 percent of \$55,879).

As in Section IV-E-5-b-(3)-(c), a range of 19 to 54 percent was used to estimate the decrease in sales from Alternative 3. With Alternative 3, the potential property tax revenue loss to Calais in the fast food/pizza shop restaurant sector is estimated to be between \$9,933 and \$28,229 (19 and 54 percent of \$52,277).

In total, a potential property tax revenue loss of between \$13,845 and \$36,052 could result from Alternative 3. This represents between 0.5 and 1.2 percent of total projected Calais property tax revenues in 2000 and between 0.1 and 0.5 percent of the total Calais city budget for 2000.

Some businesses that close or reduce operations because of the decrease in pass-through traffic from Alternative 3 could possibly relocate near the new border crossing in Milltown. It is important to note that the property tax revenue impacts discussed above would be partially offset by development in Milltown, since Milltown is within the Calais city limits.

Alternatives 2A and 3 will not impact property tax revenue in the general merchandise sector of the Calais economy. The small sales reduction indicated by the MDOT customer-intercept surveys would be unlikely to cause general merchandise stores in the Calais area to close or relocate.

## **6. Minority and Disadvantaged Populations**

The No-build Alternative, Alternative 2A, and Alternative 3 would not result in discriminatory or disproportionate impacts to minority or low-income populations.

## **7. Secondary Impacts and Cumulative Effects**

### **a. Introduction**

Secondary impacts are those that are “caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable” (40 CFR 1508.8). Secondary impacts are normally associated with development that may indirectly result from the construction or improvement of a facility, such as a transportation project. Secondary impacts differ from those directly associated with the construction and operation of a facility itself and are often caused by what is commonly referred to as induced development. Induced development may include a variety of secondary effects such as changes in land use, water quality, economic vitality, and population density. Therefore, the potential for secondary impacts to actually occur is determined in great part by the individual municipal planning objectives and the location of a project.

Cumulative effects are defined as impacts on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions (40 CFR 1508.7). Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

### **b. Secondary Impacts**

Alternatives 2A and 3 would result in the secondary impact of inducing commercial development and its resultant economic and environmental impacts (Table IV-11 and Table IV-12, next page). A new border crossing is not projected to attract much “additional growth”; it would allow border crossing-related development to occur at a normal rate without the spatial constraints at the existing Ferry Point border crossing.

Select properties or portions of properties expected to experience secondary impacts in the form of conversion to commercial uses within the next 30 years were identified. These properties exhibited the following characteristics:

- Currently undeveloped or not fully developed (e.g., large-lot single residence and/or commercial/industrial properties)
- Residences potentially susceptible to conversion to commercial uses
- Absence of natural features that would preclude or discourage development, such as wetlands, hydric soils and floodplains
- Proximity to existing development (i.e., avoidance of “leapfrog” development)
- Within or adjacent to areas designated for growth
- Accessible to existing or future roadways

**Table IV-11, Secondary Impacts, Alternative 2A**

Type	No.	Avg. Sq. Ft. <sup>1</sup>	Total Sq. Ft.	Value (\$/sq.ft.)	Building Valuation <sup>1,2</sup>	Building Revenue per yr.	Personal Property Revenue per yr. <sup>1</sup>	Total Tax Revenue per yr. <sup>3</sup>	Jobs FTE <sup>1</sup>
Customs Brokers (warehouses) <sup>4</sup>	1	20,000	20,000	\$44	\$880,000	\$15,400	\$2,500	\$17,900	N/A <sup>5</sup>
Customs Brokers (offices) <sup>4</sup>	4	2,000	8,000	\$40	\$320,000	\$5,600	\$12,000	\$17,600	N/A <sup>5</sup>
Fast Food	2	4,000	8,000	\$72	\$576,000	\$10,080	\$9,400	\$19,480	22
Duty Free	1	4,000	4,000	\$38	\$150,000	\$2,625	\$5,000	\$7,625	9
Retail Shops	4	2,000	8,000	\$60	\$480,000	\$8,400	\$800	\$9,200	12
Restaurants	1	3,000	3,000	\$44	\$133,000	\$2,328	\$1,000	\$3,328	6
Service Station/Convenience	1	5,000	5,000	\$43	\$212,500	\$3,719	\$4,250	\$7,969	8
Motel	1	17,000	17,000	\$35	\$600,000	\$10,500	\$1,000	\$11,500	11
Bank	1	3,000	3,000	\$108	\$325,000	\$5,688	\$1,700	\$7,388	7
<b>TOTAL</b>	<b>16</b>	<b>—</b>	<b>76,000</b>	<b>—</b>	<b>\$3,676,500</b>	<b>\$64,339</b>	<b>\$37,650</b>	<b>\$101,990</b>	<b>75</b>

<sup>1</sup> Estimates based mostly on existing Calais businesses (Baileyville businesses used when possible) and adjusted to account for new construction.

<sup>2</sup> Comparable with Secondary Impact for Alternative 3, since both Baileyville and Calais have state certified ratio of 100%.

<sup>3</sup> Current Baileyville tax rate (17.5 mils) used for this analysis. Includes structures such as canopies, fuel tanks and coolers. Does not include any revenue from increase in land value, or excise taxes on vehicles and heavy equipment.

<sup>4</sup> Sq. ft. estimates from Chris LaConte at E.N. Derringer (Phone Interview, 2/16/01).

<sup>5</sup> Not applicable because these jobs currently exist in Calais. Calais and Baileyville are in close proximity, residents can freely work in either town. Therefore, relocation of customs brokers represents new tax revenue for Baileyville, but net employment in region does not change.

**Table IV-12, Secondary Impacts, Alternative 3**

Type	No.	Avg. Sq. Ft. <sup>1</sup>	Total Sq. Ft.	Value (\$/sq.ft.)	Building Valuation <sup>1,2</sup>	Building Revenue per yr.	Personal Property Revenue per yr. <sup>1</sup>	Total Tax Revenue per yr. <sup>3</sup>	Jobs FTE <sup>1</sup>
Fast Food	2	4,000	8,000	\$72	\$576,000	\$13,824	\$9,400	\$23,224	22
Duty Free	1	4,000	4,000	\$38	\$150,000	\$3,600	\$5,000	\$8,600	9
Retail Shops	4	2,000	8,000	\$60	\$480,000	\$11,520	\$800	\$12,320	12
Restaurants	1	3,000	3,000	\$44	\$133,000	\$3,192	\$1,000	\$4,192	6
Service Station/Convenience	2	5,000	10,000	\$43	\$425,000	\$10,200	\$8,500	\$18,700	16
Bank	1	3,000	3,000	\$108	\$325,000	\$7,800	\$1,700	\$9,500	7
<b>TOTAL</b>	<b>11</b>	<b>—</b>	<b>36,000</b>	<b>—</b>	<b>\$2,089,000</b>	<b>\$50,136</b>	<b>\$26,400</b>	<b>\$76,536</b>	<b>72</b>

<sup>1</sup> Estimates based on existing Calais businesses and adjusted to account for new construction.

<sup>2</sup> Comparable with Secondary Impacts for Alternative 2A, since both Baileyville and Calais have state certified ratio of 100 percent.

<sup>3</sup> Current Calais tax rate (24 mils) used for this analysis. Includes structures such as canopies, fuel tanks and coolers. Does not include any revenue from increase in land value, or excise taxes on vehicles and heavy equipment.

It is anticipated that secondary development would consist of uses that are typically associated with international border crossings: customs brokers and freight forwarders offices and warehouses; duty-free retail stores; truck stops/automobile service stations and convenience stores; fast food establishments and restaurants; banks, small retail establishments, and other businesses that serve the trucking industry, cross-border and regional shoppers, tourists and other travelers.

Alternative 2A would likely result in secondary development within areas surrounding and near the new border crossing, including along Route 1, Route 9 and the highway connector to Route 9. It would likely consist of new construction on vacant parcels, expansions on partially developed parcels, and the gradual conversion of residential uses to commercial uses. Customs brokers would need to be located in the immediate vicinity of an inspection facility. The Baileyville industrial park is included in the area that would be impacted by potential secondary development. Commercial services and retail establishments would probably be located along Route 1.

Alternative 3 would likely result in secondary development within the Milltown area to the north of the Moosehorn National Wildlife Refuge. It would likely consist of new construction on vacant parcels, expansions on partially developed parcels, and the gradual conversion of residential uses to commercial uses along Baring Street. Vacant areas adjacent to the proposed GSA-owned inspection facility, within the Calais Industrial Park, and along Baring Street would be most likely for secondary development. Customs brokers will need to be located in the immediate vicinity of an inspection facility. Light industrial uses, such as warehousing, would most likely be located in the industrial park. Commercial services and retail establishments would probably be located along Baring Street.

The secondary impact on total employment and property tax revenue was estimated using existing Calais businesses (adjusted to account for new construction). Baileyville businesses were used when available in estimating secondary impacts from Alternative 2A. The estimates are based on a 30-year build-out scenario (i.e., the additional property tax revenue and new jobs would accrue over the 30-year period to reach the totals in 2030).

Secondary impacts from Alternative 2A could result in approximately \$101,990 in annual property tax revenue and 75 new jobs in Baileyville.

Secondary impacts from Alternative 3 could result in approximately \$76,536 in annual property tax revenue and 72 new jobs in Calais.

It should be acknowledged that a tax increment financing (TIF) district or other similar mechanism could reduce the amount of property tax paid by secondary development for a period of time; it is conceivable that new development could result in little additional property tax revenue.

**c. Cumulative Effects**

The intent of the cumulative effects analysis is to determine the magnitude and significance of past, present, and reasonably foreseeable future actions, both beneficial and adverse, in terms of context and intensity. Identifying and describing cause

and effect relationships for resources, ecosystems and human communities assess the environmental consequences. Effects on the following cultural, social and natural resources were analyzed:

- Community Services and Facilities
- Parks and Public Lands
- Groundwater
- Surface Water
- Floodplains
- Wetlands and Aquatic Habitat
- Vegetation and Wildlife
- Threatened and Endangered Species
- Farmlands (soils, prime farmland soils, soils of statewide importance)
- Historic and Archaeological Resources

Relevant past and present actions, and the environmental consequences of these actions on the resources were analyzed. Further analysis considered reasonably foreseeable future actions: other transportation improvements, large-scale residential or commercial development, and governmental programs or regulations (Table IV-13, page IV-27).

Other actions that were considered in this analysis, but were difficult to assess due to a lack of specific information at this time, include: development of the Calais Branch Rail line; creation of 202.7 km (126 mi.) long recreational trail from Brewer to Calais using rail right of way, also designed to connect Acadia to the Canadian Trail system through Calais; and a Calais sand/salt storage facility.

Neither Alternative 2A nor Alternative 3 would result in substantial cumulative effects, in terms of intensity or context, to the social, cultural and natural features analyzed. The very slow rate of growth in the area and region, the intensity of the foreseeable actions, the current status of the resources analyzed, and the regulatory framework, function to offset potentially negative cumulative impacts. Implementation of Alternative 2A or Alternative 3 in combination with the other actions identified, may present some increased incentive for commercial growth in the region, but other incentives would be needed to substantially affect the impact of growth.

## **F. SUMMARY OF MITIGATION MEASURES AND OTHER COMMITMENTS**

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The following measures and commitments would be honored and developed during final design of the build alternative identified as the Preferred Alternative for satisfying the Purpose and Needs of the study:

**1. Physical Geography, Soils, and Geology**

An erosion and sedimentation control plan would be developed in accordance with the MDOT's *Best Management Practices for Erosion and Sedimentation Control* (MDOT September 1997).

**2. Aquatic Resources**

The Preferred Alternative will be designed to comply with the MDEP/MDOT Memorandum of Agreement for stormwater management.

Unavoidable wetland impacts would be mitigated in compliance with the Clean Water Act Section 404(b)(1) guidelines, the Memorandum of Agreement between the ACOE and the USEPA, the ACOE's New England District's Highway Methodology (November 1993), and Chapter 310 of the Maine NRPA, if required.

MDOT, FHWA, and GSA would coordinate and consult with the NMFS during final design to develop measures to avoid, minimize, and, if necessary, mitigate the impact of piers in the St. Croix River on Atlantic Salmon.

**3. Noise**

The geometry and grading for the Preferred Alternative would be revisited in an effort to minimize noise to adjacent landowners.

**4. Transportation**

MDOT will revisit the use of ITS/CVO technologies as part of the scope of the Preferred Alternative during final design.

The MDOT, in conjunction with the NBDOT, would create a joint, uniform, set of signs designed to attract visitors to the Calais-St. Stephen area. Further, MDOT would create and install signs, in accordance with the Maine sign law, advising visitors to the Calais area of the available services.

If Alternative 3 is selected as the Preferred Alternative, MDOT would develop an access management plan to ensure that Route 1 could be widened to four lanes between the Calais Industrial Park and Route 9 and to limit access points.

**5. Land Use**

The MDOT will coordinate with the Passamaquoddy Tribe during final design to minimize impact on the tribe's rights to access the portion of the St. Croix River in Maine.

During final design, MDOT would design and incorporate a visitors center into the design of the Preferred Alternative. Specific details concerning the visitors center would be developed during final design.

MDOT will perform a Phase II ESA during final design of the Preferred Alternative.

**Table IV-13, Summary of Past, Present, and Reasonably Foreseeable Future Actions**

**Past Actions (1970 - 2000)**

1. 1970 Construction of Hathaway Shirt plant (Garfield Street Extension)
2. 1970 Construction of Ames Department Store (North Street)
3. 1975 Construction of Calais recycling transfer station at landfill building (South Street)
4. 1977 Construction of Calais High School (North Street)
5. 1977 Construction of Calais water lines and reservoirs; standpipe (Garfield Street)
6. 1970s Development of the 24.3 ha (60 ac.) Calais Industrial Park near Route 1 (Baring Street)
7. 1970s Expansion of Calais Motor Inn; pool added in 1990s (Main Street/South Street)
8. 1984 Construction of Irving Big Stop at intersection of Rts. 9 & 1
9. 1983-1986 Calais downtown revitalization - sidewalks, curbing, lighting, sewer/storm sewer
10. 1980s Construction of Rite Aid, Irving, McDonald's (North Street)
11. 1987 Construction of Fire Training Facility (North Street)
12. 1988/89 Subdivisions approved - Palmer St. (26 lots); South St. & Harrison St. (7 units)
13. 1990 Construction of Rich's Department Store; became Marden's in 1996 (Monroe Street)
14. 1992 Construction of Shop'n Save (South Street)
15. 1994 Construction of Wal-Mart (South Street)
16. 1998 Waterfront park revitalization - waterfront/downtown green space, parking and walking trail
17. 2000 WCPA residential child care facility constructed at Hathaway Shirt site (Palmer Street Extension)
18. 2000 Call center moved into existing building (North Street/Union Street)

**Present Actions (2001 - 2005)**

1. Construction of sewer in Baileyville along Rte. 1 to Baileyville/Baring town line, and along Rte 9 west for approximately 304.8 m (1000 ft.) (to be completed July 2001)
2. Proposal to create 1,765 m<sup>2</sup> (19,000 sq. ft.) Heritage Center in Calais Press Building - adaptive reuse and expansion of existing building on .8 ha (2 ac.) (Union Street).
3. Proposal to construct new Calais Middle School, study underway to determine if it is to be rebuilt at current 1.6 ha (4 ac.) site (Washington Street/North Street) or a new addition to the Calais Elementary School on approximately 14.1 ha (35 ac.) (Garfield Street). Construction anticipated in 2002
4. Baileyville Industrial Park - construction of infrastructure to include sewer extensions and roads within the park. 40.8 ha (101 ac.) of developable land to be subdivided into approximately 17 lots; an additional 4.0 ha (10 ac.) may be purchased along Route 9 in the future; proposal avoids approximately 24.3 ha (60 ac.) of undevelopable land; town pursuing grant
5. Calais Waterfront development - Ongoing construction of bicycling/walking paths and trail from downtown Calais to the Moosehorn National Wildlife Refuge trails, Red Beach and Nash's Lake; seeking funding to restore wharf
6. Development of new water supply for Calais - well in Calais, Baring, Charlotte or water line extension from Baileyville (uncertain location)

**Future Actions (2006-2030)**

1. Relocation/refurbishment of Maine Tourist Information Center
2. Construction of new Moosehorn NWR Visitors Center
3. Development of the Calais Branch Rail line - passenger excursions and freight; possibilities for turntable at Milltown or rail/truck facility at Calais Industrial Park
4. Proposal to create 304.8 km (126 mi.) recreational trail (biking, hiking, snowmobiling and jogging) between Brewer & Calais using rail right-of-way; also to connect Acadia to the Canadian Trail system through Calais
5. Proposal to construct new sand/salt storage
6. Calais Waterfront development proposals for additional parking, redesigned Hardwick's store, a convention center/hotel, marina, new amphitheater near tourist bureau, etc.; projects generally entail reuse of waterfront/downtown areas; no detailed plans
7. Alternative 2A or Alternative 3
8. Alternative 2A Secondary Impacts (Baileyville) — 7,060 m<sup>2</sup> (76,000 sq. ft.) of commercial and light industrial development anticipated adjacent to and near Alternative 2A; 75 additional jobs anticipated, or Alternative 3 Secondary Impacts (Calais) — 3,344 m<sup>2</sup> (36,000 sq. ft.) of commercial and light industrial development anticipated adjacent to and near Alternative 2A; 72 additional jobs anticipated